

Thank you for choosing this high quality camera, before attempting to connect or operate this product, please read these instructions completely

Day / Night OLPF Removeable

DIGITAL COLOR VIDEO CAMERA ON-SCREEN-DISPLAY

HIGH RESOLUTION

**AC24V /12VDC Model
AC100~240V
1/2" CCD Sensor**

OPERATING MANUAL

- **WARNING:**
TO REDUCETHE RISK OF FIRE OR ELECTRONIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE AND DO NOT REMOVE COVER OR BACK.
- **CAUTION:**
 - 1.CONNECT 24VAC UL LISTED CLASS 2 POWER SUPPLY.
 - 2.INSTALL THE CAMERA UNDER UNSTABLE LIGHT SOURCE MAY CAUSE THE ABNORMAL FUNCTION.
 - 3.ONLY USE CAMERA UNDER CONDITIONS WHERE TWMPERATURES ARE BETWEEN -10°C to 50°C.
- **FIELS INSTALLATION MARKING:**
THIS INSTALLATION SHOULD BE MADE BY A QUALIFIED SERVICE PERSON AND SHOULD CONFORM TO ALL LACAL CODES

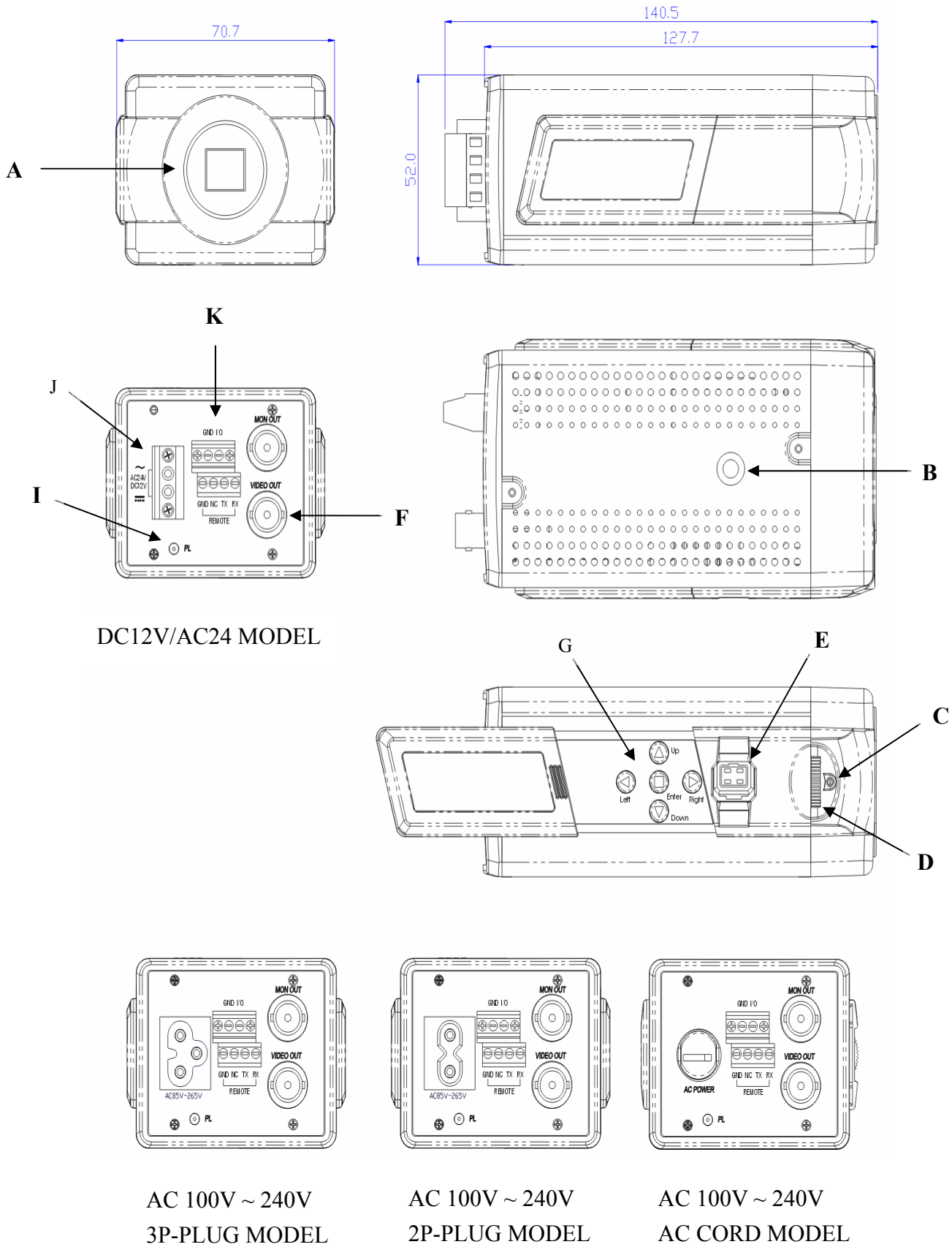
1. General

This a color CCD video camera employs a 1/2 inch charge coupled device solid-state imaging device with 470/410 k picture elements, This unit is equipped with a newly developed DSP (Digital Signal Processor) for processing the video signal. This superior and high sensitive series ensure to meet any strike 24 hours' surveillance monitoring demand. A micro-controller is also introduced to provide high color reproduction, sharp, stable picture and most of the function's control; the special feature for this camera is it can accept IR illumination under minimal lighting condition.

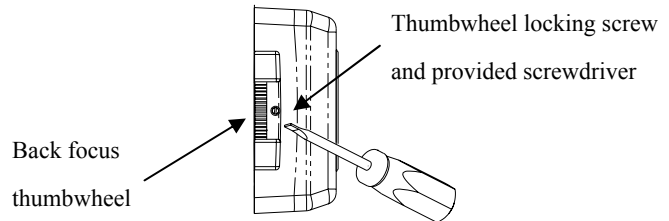
2. Features

- 1/2" SONY Exview HAD / Super HAD CCD with 470 K/410K (PAL/ NTSC) pixels
- SONY digital signal processor (DSP) allows better picture quality
- Advanced Dual mode resolution form more than 500 TV Lines in color mode to 540 TV Lines in B/W mode
- IR accuracy: Vivid color performance in the day time and sharp B&W image with no focus shift in the nighttime.
- Smart Optical Low Pass Filter (O.L.P.F) switching mechanism allows changing between color and monochrome.
- Enhanced O.L.P.F control system (4 modes)
 - Automatic
 - Manual
 - Schedule
 - External I/O
- Integration GPIO (day/night, IR projector control)
- On Screen Display control (OSD)
- Remote control by RS232C
- Infrared light-sending response wavelength from 700 to 1100 nm
- Intelligent time delay switch
- Friendly back focus mechanical structure to adjust focus distance
- Advanced intelligent circuit design to increase the low light sensitivity 0.1 Lux color mode down to 0.01 Lux B&W mode (Exview HAD)
- Outstanding signal to noise ratio better than 50 dB
- 255 Areas Auto detects back light compensation
- Internal or Line-lock external sync
- Isolated switching power DC12V /AC24V , AC 100~240 V

3. Name of Parts and Functions



- A. C (CS) mount adapter if a CS mount lens is to be used, remove the C mount ring
- B. Holder screw hole
Standard photographic pan-head screw size (1/4" – 20) Flange focal lock screw
- C. Flange focal lock screw



- D. Flange focal distance adjuster—if back focus adjustment this ring

- E. Auto iris lens connector (MINI JACK)
Use the accompanying auto iris lens control connector plug.
For auto iris lens is with built-in EE amp. (VIDEO Type)
Set the lens selector switch to "VD" position.

Connector cable leads

1.Red --- power 3.White --- video

2.NC4.Black --- shielded

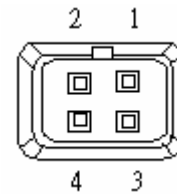
For auto iris lens is without EE amp. (DC Type)

Set the lens selector switch to "DD" position.

Connector cable leads

1. Damping coil (-) 3. Driving coil (+)

2. Damping coil (+) 4. Driving coil (-)



- F. Video output terminal (BNC)
This connector is used to connect with the VIDEO IN connector of monitor.

- G. On-Screen Display keypad

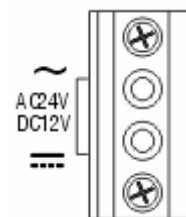
- H. Slide out for control panel

- I. Power pilot LED

- J. DC12V / AC 24V Block Terminal

This terminal accepts DC 12V(Non-polarity) or AC 24V.

The other model: AC 100 ~ 240V.



- K. External project control I/O and Remote control terminal

4. USER OSD SETTING

SETTING SWITCHES AND FUNCTIONS

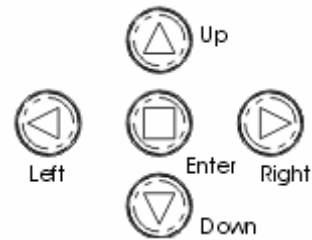
1.UP Button-This button is used to move the cursor upwards. Use this button to select item.

2.LEFT Button –This button is used to move the cursor left. Use to select or adjust the parameters of the selected item.

3.RIGHT button-This button is used to move the cursor to the right. Use to select or adjust the parameters of the selected item.

4.DOWN Button-This button is used to move the cursor downwards. Use this button to select item.

5.ENTER Button-Press this button to display the setting menu, if the selected item has its own menu; press this button to enter sub menu.



PC control

For window 95/98

1. Insert the floppy into diskette, and run OSDV1.exe for auto extract all files into hard disk
2. Execute Kampro_VK.exe
3. A virtue keypad icon will display on screen
4. Use mouse to point the icons for on-screen-display setting.

RS-232 Connection Please refer to the Setup option

In the program window (com2 default)

- 1.RX pin----SD (D-sub 9) pin 3 from PC
- 2.TX pin----RD (D-sub 9) pin 2 from PC
- 3.NC
- 4.GND-----GND (D-sub9) pin 5



I/O PORT The port can send or receive signal by external device.

Select option mode by OSD D/N function.

The camera can switch day or night by external device when it select external mode.

And other mode can send signal to external device. Day (0V). Night (+5V).

5. SETTING MENU AND FUNCTIONS

SETUP MENU	
· CAMERA ID	OFF
LIGHT CNTL	AES
WHITE BAL	ATW
D/N CNTL	
PICTURE	VIDEO
DISPLAY	COLOR POS
OPD WINDOW	
MISC	
END INIT DEMO	↑ UNLOCK

1. Press the ENTER key to enter main menu.
2. Press UP/DOWN key to select the item for adjusting.
3. Press the ENTER key to enter the sub menu of selected item.
4. Move the cursor to END at the

bottom line and press the ENTER to close the setup menu and return to normal camera operation mode.

5. Move the cursor to INIT and press the ENTER to return all parameters to the factory default settings. (Don't press INIT unless it is necessary)
6. Move the cursor to DEMO and press the ENTER to enter function demo mode, turn off the power or press the ENTER at 3 seconds to stop the demo.
7. Move the cursor to ↑ position and press the ENTER key for menu position setting.
8. Move the cursor to UNLOCK and press the ENTER to LOCK the setup menu.

UNLOCK PASSWORD

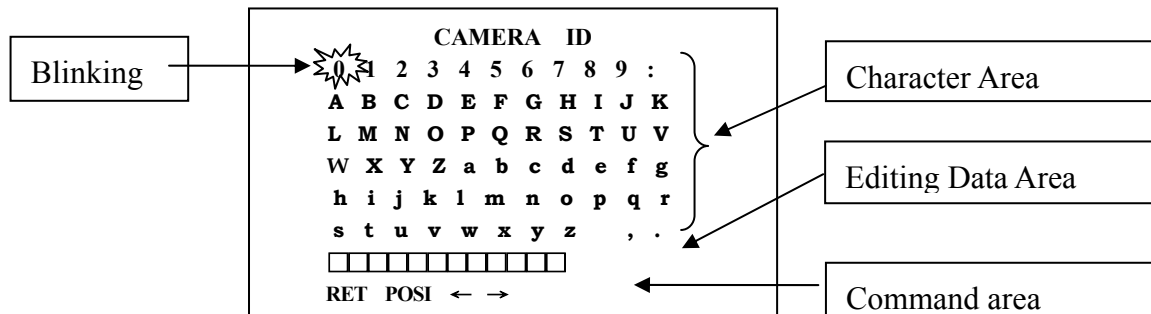
Press UP, DOWN, DOWN, RIGHT then ENTER key to unlock the menu.

Note: If no button is pressed for 2 minutes while any setting menu displayed, all modified data will be stored and returns to the normal camera picture mode.

6. Setting Procedure

6.1. Camera Identification Setting (CAMERA ID)

Move cursor to CAMERA ID then press ENTER key to enter ID sub menu



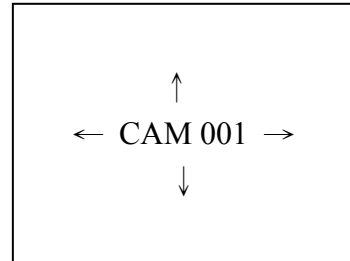
Move the cursor to the character you want to enter or modify by pressing UP, DOWN, RIGHT, LEFT key. After selecting the character, by press the ENTER key, the selected character will display on editing data area.

Repeat the step above until all characters are input or edited.

Move the cursor to ← → to edit a specific character in editing data area.

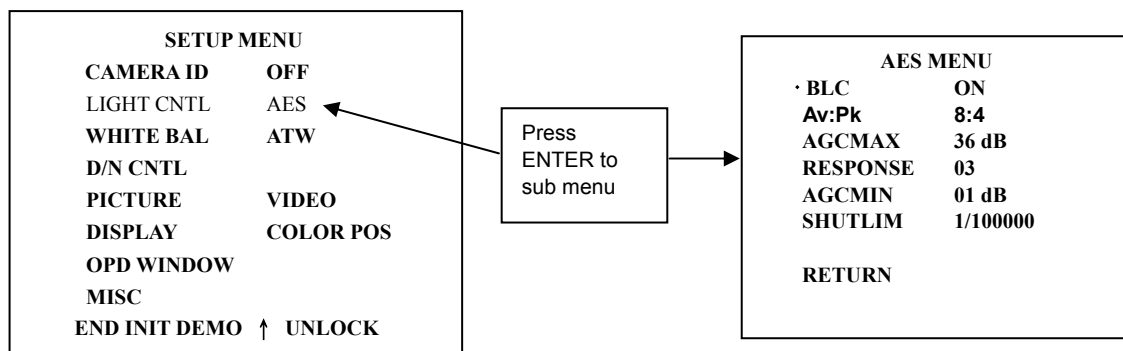
Move the cursor to BLANK (between “z” and “,”) character position then press enter to erase the character

Move the cursor to POSI, then press ENTER, the camera id will display on screen, move the camera ID to the desired position by pressing UP, DOWN, RIGHT, LEFT key, then press ENTER to fix the ID position and return to previous menu.



6.2. Light Control

Move cursor to LIGHT CNTL then press ENTER key to enter sub menu



Press RIGHT or LEFT key to select item, then Press the ENTER to enter Item sub menu

Mode sequence:



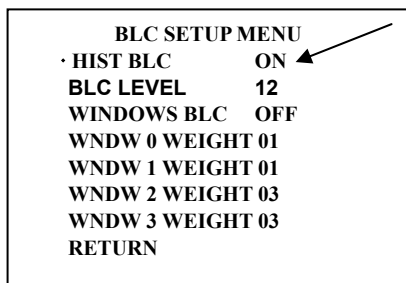
AUTO EXPOSURE MODE:
 AES mode: 1/50(1/60) to 1/100,000 sec. AGC 0-36 dB.
 AES LOW mode: 1/120(1/100) to 100,000 sec. AGC 0-36dB.
 FLICKERLESS mode: 1/120 PAL; 1/100 sec. NTSC, AGC 0-36dB.
 AUTO IRIS mode: 1/50(1/60) sec. AGC 0-36dB.
 AUTOIRIS + SHUTTER mode: 1/50(1/60) to 1/10,000 sec. AGC 0-36 dB.

6.2.1. BLC setting

LEFT/RIGHT key to turn Back Light Compensation function ON/OFF

Press ENTER key to display BLC sub menu

HIST BLC—ON/OFF



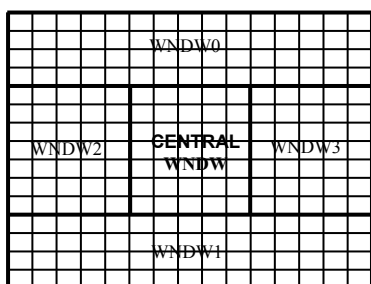
The HIST BLC (histogram) is good for when the subject has only a slightly darker luminance and moving around the screen, backlight compensation is performed through exposure luminous intensity to the dark areas. The internal u-com will detect the overall picture contrast and turn on or off the back light

compensation function automatically.

- **BLC LEVEL-for histogram BLC**

The compensation level of histogram backlight compensation can be modified from 0 to 255, the default setting is 13, increase the number to increase the compensation effect.

- **WINDOWS BLC ON/OFF—Press RIGHT or LEFT key**



This method is suited for cases where the main subject is fixed within the screen.

The important object in a scene is usually placed in the center of the monitor's screen. In this mode more photometric weight is given to the center of the screen than to the edge of the picture, this function will eliminate the interference by strong background light, which makes the camera picture dark.

The size and location of center window can be adjust freely by user within 225 area on screen (detail please see OPD setting)

The size and location of center window can be adjust freely by user within 225 area on screen (detail please see OPD setting)

- **Windows Weighting Setting**

The weighting for windows 0 to 3 can be set independently in a range from 0 to 15. Windows 4 in the center is fixed to the maximum value 15.

WNDW0 WEIGHT	0—15, default setting	1
WNDW1 WEIGHT	0—15	1
WNDW2 WEIGHT	0—15	3
WNDW3 WEIGHT	0—15	3

The combination of two types backlight compensation makes it easier to arrange backlight compensation operation to match the imaging conditions and installation location.

Note:

Compensation may be insufficient when the background is extremely bright

Move to RETURN position and press ENTER key back to LIGHT CONTROL sub menu.

6.2.2. Av:Pk setting (for all AE mode)

Adjust the Av:Pk value by press the LEFT or RIGHT key.

Greater Av. value for average photometric method, the electronic convergence is automatically adjusted with the average video signal level of the object as the right photometric value.

Increase the Pk. value for the peak photometric method, the electronic convergence is automatically adjusted with the peak video signal level of the object as the right photometric value.

it is recommend to adjust this setting on DC iris lens after level setting. Variation range: 0:12 1:11 2:10 3:9 4:8 5:7 6:6 7:5 8:4 9:3 10:2 11:1 12:0 , The default setting is 8:4.

AES MENU	
BLC	ON
Av:Pk	8:4
AGCMAX	36 dB
RESPONSE	03
AGCMIN	01 dB
SHUTLIM	1/100000
RETURN	

6.2.3. AGCMAX/AGCMIN setting (for all AE mode)

Press the LEFT or RIGHT key for AGC maximum or minimum setting.

The default setting for AGCMIN is 0dB, and the AGCMAX is 30 dB, the range of AGCMAX is from 0 dB up to 36 dB and AGCMIN is from 0 dB 20 dB.

6.2.4. AE response speed setting (for all AE mode)

If you want to adjust the response speed of exposure, move the cursor to RESPONSE position, adjust the value by press LEFT or RIGHT key, the response time of exposure

system can be set from 0.5 second (01) up to 15 second (255), by increase the figures for slower response. The default setting is 0.5 second for normal applications, If you don't want the monitor screen picture been influenced by auto exposure response speed when suddenly a spot light displayed on screen which makes the camera picture become dark.

This function is very useful when the camera is installed at car parking area or on the street at night, you can see objects more clearly inside the car and the number of license plate or like that.

AES MENU	
BLC	ON
Av:Pk	8:4
AGCMAX	30 dB
RESPONSE	03
AGCMIN	00 dB
SHUTLIM	1/100000
RETURN	

6.2.5. Shutter limit setting (for AES/CCD iris mode only)

Move the cursor to SHUTLIM position, press LEFT or RIGHT key for shutter limit setting

The shutter speed range of AES (CCD IRIS) is from 1/50(1/60) second to 1/100,000 second, for some applications need higher quality picture or minimize the sensor smear, the Manxman shutter can be limited on 1/500 to 100,000 second.

AES MENU	
BLC	ON
Av:Pk	8:4
AGCMAX	30 dB
RESPONSE	03
AGCMIN	00 dB
SHUTLIM	1/100000
RETURN	

1/500<1/1000<1/2000<1/5000<1/10000<1/20000<1/50000<1/100000

6.2.6. Shutter speed (for Auto iris + shutter mode)

Move the cursor to SHUTSPEED position on AUTOIRIS+SHUT mode sub menu, press LEFT or RIGHT key for shutter speed setting.

AUTO IRIS-SHUT MENU	
BLC	ON
Av:Pk	8:4
AGCMAX	30 dB
RESPONSE	03
AGCMIN	00 dB
·SHUTSPEED	1/60
RETURN	

Under appropriate shutter speed setting, the blurring of motion objects will be greatly reduced, when the camera with auto iris lens been installed at highway , production line or like that.

6.2.7. ME Setting

Press ENTER key at LIGHT CNTRL menu, the MANUAL EXPOSURE menu will display on screen, move the cursor by UP/DOWN key to select adjustment item.

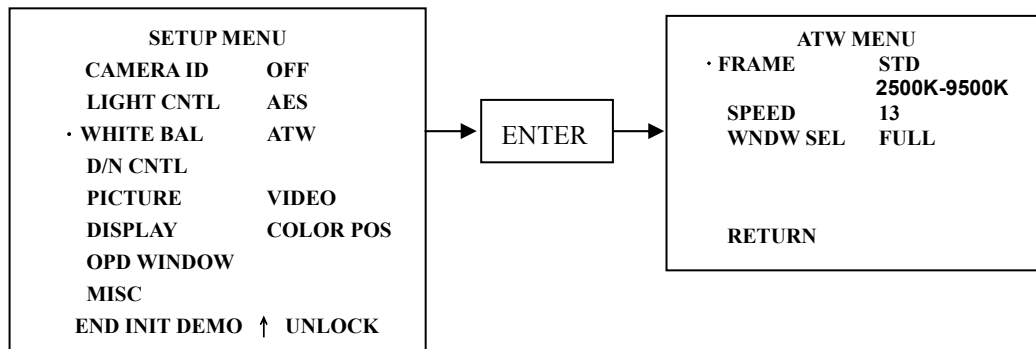
Shutter speed: 1/50(1/60), 1/120(1/100), 1/250, 1/500, 1/1,000, 1/2,000, 1/5,000, 1/10,000 sec.

Gain: 0, 6, 12, 18 dB.

ME MENU	
· SHUTTER	1/50 SEC
GAIN	0 dB
RETURN	

6.3. WHITE BALANCE

Move cursor to WHITE BAL then press ENTER key to enter sub menu



Item sequence:

ATW→ AWB→ PUSH TO LOCK→ MANUAL→PRESET→ATW

1. ATW—Auto tracking white balance

Detecting frame range setting

ATW response speed setting

Faster 1 → 15 Slower

White balance detecting windows setting
press LEFT or RIGHT key for range setting

ATW MENU	
· FRAME	STD
· SPEED	2500K-9500K
· WNDW SEL	13 FULL
RETURN	

2. AWB—Conventional white balance

3. PTL—Push to lock white balance
4. Manual—Manual white balance
5. Preset—Fixed color temperature for Indoor, Outdoor, Fluorescent, User setting.

```

PUSH TO LOCK MENU
· PTL    PUSH

RETURN
  
```

```

PRESET MENU

· WB FIX    INDOOR
              3200K

RETURN
  
```

```

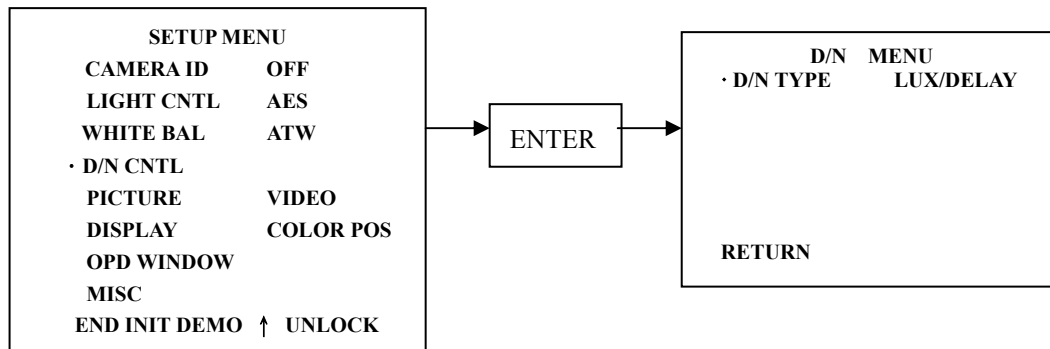
MENU WHITE BAL MENU

·*R GAIN    STD
·*B GAIN    STD

RETURN
  
```

6.4. DAY/NIGHT CONTROL

Move cursor to D/N CNTL then press ENTER key to enter D/N MENU



Press RIGHT or LEFT key to select item, then Press the ENTER to enter Item sub menu

LUX/DELAY → SCHEDULE → EXTERNAL → DAY MODE → NIGHT MODE

1. LUX/DELAY

Press RIGHT or LEFT key to set the item.

LUX LEVEL – Sets the color and monochrome switching level. You can select LOW LVL, MID LVL, HI LVL.

DELAY TIME – Sets the detecting time. The Color/monochrome mode switches if the brightness level change specified You can select 10 sec, 30 sec or 60 sec

```

LUX/DELAY MENU
· LUX LEVEL    LOW LVL
  DELAY TIME    10 SEC

RETURN
  
```

2. SCHEDULE (D/N SWITCH TIME)

This function can set the time to change the Day/Night mode.

CHOICE D/N TYPE: Press ENTER key to switch D or N mode to conform to your setting time.

```
SCHEDULE MENU
·D → N TIME HOUR : 00
                MIN  : 00
N → D TIME HOUR : 00
                MIN  : 01
CHOICE D/N TYPE

RETURN
```

※If N→D time same with other, camera will plus 1 minute by itself.

3. EXTERNAL

This function allow use external device to control camera switch to Night mode by HI (+5V) potential or LOW (0V) potential.

※Function 1~3 will action when back to first menu (SETUP MENU)

```
EXTERNAL D→N MENU
·INPUT SIGNAL      HI

RETURN
```

4. DAY MODE

Switch to DAY mode.

5. NIGHT MODE

Switch to NIGHT mode.

6.5. PICTURE CONTROL

Menu item: VIDEO→ PATTERN→ APERTURE→ GAMMA

VIDEO MENU

1. Chroma Gain setting

Move the cursor to CHROMA position, while observing the monitor or vector scope, move the “I” bar to adjust the color level.

2. HUE gain setting

Move the cursor to HUE position, while observing the monitor or vector scope, move the “I” bar to adjust the TINT phase.

3. Brightness level setting

Move the cursor to BRIGHT position, while observing the color video monitor or waveform monitor / oscilloscope , press LEFT/RIGHT key to adjust the brightness level. Press ENTER key back to default brightness setting value.

4. Pedestal level setting

Move the cursor to PESESTAL position, while observing the color video monitor or

```
VIDEO MENU
·CHROMA |· · · |· · · |
HUE     |· · · |· · · |
*BRIGHT 90
PEDESTAL 7.5 IRE
SPRS EFCT 120
SPRS GAIN 48

RETURN
```

waveform monitor / oscilloscope , press LEFT/RIGHT key to adjust the pedestal level.

5. Chroma suppress effect level setting

This parameter is for control the timing of minimal lighting level when the camera picture swaps from color into monochrome.

Increase the parameter value toward late swap at lower lighting level, the default setting is around 2 Lux.

Move the cursor to SPRS EFCT position, adjust the value by LEFT/RIGHT key.

6. Chroma suppress gain

This parameter control the color gain when the picture swap from color into monochrome under low light, set the value to "0" for completely black and white picture effect, set the value to maximum for no color suppress effect.

PATTERN MENU

This function is good for quick color monitor calibration and cable signal condition checking.

Move the cursor to PATTERN position to turn ON or OFF the pattern generator.

Move the cursor to TYPE to select the pattern type.

Move the cursor to COLOR for different color display selection.

PATTERN MENU	
· PATTERN	OFF
TYPE	HSR
COLOR	BLUE
RETURN	

APERTURE MENU

Move the cursor to AP GAIN L for horizontal low frequency aperture correction. (00-03)

Move the cursor to AP GAIN H for horizontal low frequency aperture correction. (00-03)

Move the cursor to V AP GAIN for vertical aperture correction. (00-15)

APERTURE MENU	
· AP GAIN L	02
AP GAIN H	02
V AP GAIN	10
RETURN	

GAMMA MENU

1. Move the cursor to Y GAMMA ADJ to turn on or off the gamma correction.

Turn off the Y gamma ADJ for gamma = 1.

Off1 for gamma=1 with no knee effect.

Off2 for gamma=1 with knee on effect.

GAMMA MENU	
· Y GAMMA ADJ	ON
Y GAMMA	04
Y KNEE	00
C GAMMA ADJ	ON
C GAMMA	04
C KNEE	07
RETURN	

2. Move the cursor to Y GAMMA for different gamma correction, set the value to 04 equal to gamma .45, the value of 01 around gamma = 0.9, Value 07 equal to 0.1.

3.The default setting for Y KNEE is 00, there are 6 knee curve selectable.

4. C GAMMA ADJ ON/OFF

Off1 with no knee effect.

Off2 with knee on effect.

5. Chroma gamma curve 00-07(default=04)

6. Chroma knee curve 00-07(default=07)

POSITIVE/NEGATIVE

Display sequence:

COLOR POSITIVE→ COLOR NEG→ MONO POS→ MONO NEG

OPTICAL DETECT WINDOWS SETTING

Enter this menu for detecting window size and position setting.

Press ENTER for detection windows size and position adjustment, after setting press ENTER key again back to previous menu.

```
OPD WINDOW MENU
· OPD WINDOW POSITION
  OPD WINDOWS SIZE

RETURN
```

6.6 MISC

This function is to adjust the camera's Synchronization and lens applications.

Move the cursor to MISC and press enter.

6.6.1. EXTSYNC

Press LEFT/RIGHT key to select the type of camera's synchronization, press ENTER key to enter external sync phase adjusting menu.

Align sync phase by press LEFT/RIGHT key.

```
MISC MENU
· EXT SYNC      INT
  AUTO IRIS     DC LENS
  IRIS WINDOWS  13
  SYSTEM HOUR : 08
                MIN : 00
  SYSTEM TIME : DISPLAY

RETURN
```

6.6.2. AUTO IRIS

Press LEFT/RIGHT key to select the type of auto-iris lens: DC lens / Video lens.

6.6.3. IRIS WINDOWS

Press LEFT/RIGHT to adjust the level for auto-iris lens (for both DC type and Video type). Ranging from 0 to 19.

6.6.3. SYSTEM HOUR

Setting hour of current time (0 to 24)

6.6.4. SYSTEM MIN

Setting minute of current time (0 to 60)

6.4.5. SYSTEM TIME (DISPLAY/HIDE)

Show or Hide current time on screen when the camera working.

7. SPECIFICATIONS

Image device	1/2" interline transfer Super/Exview HAD CCD
Signal system	PAL or NTSC standard
Picture elements	PAL: 542(H) x 582(V), NTSC: 542(H) x 492(V) PAL: 795(H) x 596(V), NTSC: 811(H) x 508(V)
Scanning system	PAL: 625 lines, NTSC: 525 lines, 2:1 interlace
Sync system	Internal/Line lock sync
Horizontal resolution	Color: 500TV-Lines, B/W: 540TV-Line
Minimum illumination:	Exview HAD: 0.1Lux at F1.2(Color), 0.05Lux at F1.2(B/W) Super HAD: 0.5Lux at F1.2(Color), 0.1Lux at F1.2(B/W)
Aperture correction	H aperture and V aperture-gain adjustable
Gain	Super AGC 0- 36dB;Min gain 0-20dB; MGC
S/N ratio	Better than 50dB
Auto exposure system	1. CCD iris mode : 1/50(1/60) - 1/100,000 sec. 2. Flickerless mode : NTSC 1/100 sec. PAL 1/120 sec. 3. AES low shutter mode : 1/100(1/125) – 1/100,000 sec 4. Auto iris mode : 1/50(1/60) sec. 5. Auto iris with shutter mode: 1/50(1/60) to 1/10,000 sec. Auto Exposure Av./Pk level: 1:12 to 12:1 Auto Exposure response speed: 0.5 to 20 sec
Manual exposure system	Shutter speed: 1/50(1/60), 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/5000, 1/10000 sec. Gain: 0, 6, 12, 18 dB
White balance	ATW: Max 2000° K- 18000° K, speed, detect window adjustable AWB: conventional Push to Lock: gain memory PRESET: Indoor mode 3200° K, Fluorescent mode 4200° K, Outdoor mode 6300° K User memory mode: MWB: R gain, B gain adjustable
Back light compensation	1. Histogram detect: level can be adjusted from 0 to 15 times. 2. Windows weighting: 225 divisions on screen, each window compensation weighting can be adjusted 3. Histogram and windows weighting can be set on/off individually. BLC function activated for auto iris lens also
Day& Night	1. Auto detect: D/N switch illumination level, Delay times 2. D/N by Schedule: Day to Night time, Night to Day time 3. D/N by External: Hi, Low 4. Day mode 5. Night mode
Video output signal	Composite: 1.0 Vp-p at 75Ω load Y/C: Y= 1.0 Vp-p at 75Ω load C= 0.286 Vp-p at 75Ω
Gamma correction	0.1 –1.0, Y/ C gamma curve selectable
Knee effect	Y / C knee selectable
OSD presentable function	1. Camera ID : up to 20 characters alphanumeric, position, brightness, contrast 2. Light control : Exposure mode, BLC, AGC maximum or minimum, AE response speed, AE Average/Peak, shutter limit 3. White balance : ATW , AWB, PTL, MWB Preset, ATW speed, detect area 4. Sync system selection, phase adjustment 5. Picture Chroma, Hue, Brightness, gamma, aperture correction, color suppress 6. Color -Negative, Positive, Monochrome – Negative, Positive. 7. Color pattern generator 8. OSD menu lock 9. Auto Demo 10. D&N Filters Removable: Auto Detect, Day/Night, D/N by Schedule, D/N by External 11. System Time Display

Auto iris lens	Accepts video or DC drive iris lens
Lens mount	C & CS mount
Operating temperature	-10°C to 50°C
Power source	DC 12V AC 24V /DC 12V AC 100 ~ 240 V
Power consumption:	4.8 W (DC type) 6.0 W (AC type)
Dimensions (W x H x D):	71 x 52 x 128 mm
